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ABSTRACT

A study was done of recent graduates of associate degree nursing programs (ADNs) and baccalaureate degree nursing programs (BSNs) to see whether they could be differentiated on the basis of two levels of nursing practice using three categories of competency: direct care, communication, and management. The study used a post-test-only comparison group design to analyze response scores to a survey instrument designed to address 16 professional competencies and administered to a volunteer sample of 20 ADN and 29 BSN graduates. All participants had graduated within the previous 8 months and were employed in 4 large metropolitan hospitals. Results showed no difference between ADNs and BSNs in two of three categories of nursing competency (direct care and management). In addition it was found that nurses from both groups with lower grade point averages scored better on communication competencies. Consideration of the findings suggested that curricula in educational programs must acknowledge competency statements describing two levels of practice and design associate and baccalaureate curricula accordingly. Bringing about clearer differentiation between the two levels would preclude blurring of competence of students graduating from technical and professional curricula. Included are seven tables and 19 references. (JB)

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# ARTICULATION AMONG NURSING PROGRAMS: A PATH TO TRAVEL TO SOLVE THE NURSING SHORTAGE?

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## Introduction

The 1965 American Nurses' Association position statement on entry into professional nursing practice indicated that baccalaureate education should be the minimum requirement (American Nurses' Association, 1965). Since then, national, regional, and statewide nursing organizations developed competency statements to differentiate between two levels of nursing practice: professional and technical. Currently, graduates from either program are able to write the same licensing examination, and upon successful completion, are referred to as 'registered nurses'. Permitting graduates from associate degree programs to be referred to as registered nurses, and thereby 'professional' by society's standards, becomes a significant barrier as nursing strives to become recognized as a 'profession'.

The purpose of this study was to determine if recent graduates of associate degree nursing programs (ADNs) and baccalaureate degree nursing programs (BSNs) could be differentiated on the basis of two levels of nursing practice using Primm's (1986) three categories of competencies: direct care, communication, and management.

## Review of Related Literature

Research data on direct care competencies are contradictory. In studying both types of nurses, Johnston (1982) and Lee and Strong (1985) offer conflicting evidence in terms of differences in nursing process strategies and perception of competence in nursing diagnoses. Levin et al (1987) found that baccalaureate degree graduates did not evidence expected direct care

competencies; however, Gray, Murray, Roy, and Sawyer (1977) found baccalaureate degree graduates well prepared in direct care competencies, especially in health promotion activities.

More consistent results about communication competencies were found in the following studies: Jacobs et al (1978) found that BSNs possess better skills associated with communication competencies than ADNs; Meleis and Farrell (1974) found that BSNs rated higher in communication; and Nelson (1978) found that BSNs rated themselves higher in communication.

Research studies results related to management/leadership are conflicting. Gray, Murray, Roy, and Sawyer (1977) found that BSNs showed more leadership functions than management concerns. DiMarco and Hilliard (1978) found no significant difference between ADNs and BSNs in their management role of team leader. Furthermore they concluded that additional education of BSNs may not enhance their performance in the role of team leader, a management competency, or that BSN education manifests itself in other types of nursing performance.

Methodology

A post test only comparison group design was used to analyze response scores to a self-developed instrument designed to address sixteen professional competencies identified by Primm (1986). This instrument was administered to a volunteer sample of 20 ADN and 29 BSN graduates who graduated within the previous eight months and were employed in four large metropolitan hospitals in a mid-west state. Since simulations offer greater flexibility for examining practitioner's behaviors (Loveland, 1985), the

instrument subjects responded to consisted of 32 open-ended questions about two vignettes describing the occurrence of a health problem within a family (stroke and alcoholism). Each vignette's questions approximated the intent of Primm's 16 professional competencies. A model answer to 32 questions was developed by a jury of five experienced senior level baccalaureate educators from two baccalaureate nursing programs. The jury represented the customary three senior level subspecialties (medical/surgical, psychiatric-mental health, and community health nursing). Answers had to appear in 3 of the 5 (60%) jury responses to be considered a 'right' answer to frame the model answer. An additional panel of three experienced senior level faculty formed a jury of experts to judge subjects' responses as correct or incorrect. Demographic information included age, sex, ADN/BSN degree, GPA, previous hospital experience other than nursing program, and other degrees. Data were analyzed using t test and Pearson product moment correlation statistics.

Results

Overall, there were no significant differences between scores of ADNs and BSNs on the two health vignettes. As shown in Table 1 the total mean score for both vignettes was 107.18 (S.D. 37.39) for ADNs and 106.01 (S.D. = 36.28) for BSNs ($t(47) = -.11$). Further analysis found that BSNs scored significantly higher than ADNs for direct care on the alcohol vignette. The mean score for ADNs was 7.88 and 9.18 for BSNs ($t(47) = 2.01$, $p<.05$). Also, BSNs scored significantly higher than ADNs for communication on the alcohol vignette. The mean score for ADNs was 2.60 and 3.45

Table 1

Means, Standard Deviations, and t Values on Competency Categories of ADNs and BSNs

| | ADN | | BSN | | t (a) |
|---|---|---|---|---|---|
| Variable | M | SD | M | SD | |
| Total Score (Both Vignettes) | 107.18 | 37.39 | 106.01 | 36.28 | -.11 |
| Total Score (Stroke) | 54.23 | 20.85 | 51.44 | 24.79 | -.41 |
| Total Score (Alcohol) | 52.95 | 22.31 | 54.56 | 17.91 | .28 |
| Alcohol (Direct Care) | 7.88 | 2.20 | 9.18 | 2.24 | **2.01*** |
| Stroke (Direct Care) | 6.37 | 3.16 | 6.76 | 4.06 | .36 |
| Total (Direct Care) | 14.25 | 4.89 | 15.94 | 5.45 | 1.11 |
| Alcohol (Communication) | 2.60 | 1.68 | 3.45 | 1.45 | **1.88*** |
| Stroke (Communication) | 2.55 | 1.58 | 2.47 | 1.46 | -.18 |
| Total (Communication) | 5.15 | 2.91 | 5.92 | 2.41 | 1.01 |
| Alcohol (Management) | 8.67 | 4.02 | 7.90 | 4.11 | -.65 |
| Stroke (Management) | 9.42 | 4.06 | 8.70 | 4.40 | -.58 |
| Total (Management) | 18.08 | 6.62 | 16.60 | 6.97 | -.75 |

*$p < .05$.
a. pooled variance estimate. df = 47

for BSNs ($t$ (47) = 1.88, $p<.05$). When five ADNs who were former LPNs were excluded from analysis, there was a statistically significant difference between BSNs and ADNs in the communication category for both vignettes as shown in Table 2. There were no statistically significant differences between both groups in the management category.

As shown in Table 3, ADNs were considerably older; 50% were between 30-37 years old while 76% of the BSNs were between 22-25 years old. In comparing previous hospital experience, ADNs accounted for 909 months (80%) and BSNs accounted for 227 months (20%). See Table 4. Three ADNs had non-nursing bachelors degrees. As shown in Table 5, the mean GPA of ADNs was 3.24 with a standard deviation of .396. The mean GPA of BSNs was slightly higher at 3.29 with a smaller standard deviation of .318.

Age had negligible correlations for ADNs on direct care and communication, but a moderate positive correlation ($r$(18 = .39) for management. See Table 6. This finding may suggest that the older age and more experience of ADNs was reflected in their responses on the management competency category. The reverse of this may be seen in negative correlations of -.28 and -.29 for communication and management for younger BSNs. GPA had low negative correlations for both ADN and BSN groups suggesting that subjects with lower GPAs scored slightly better on the three competency categories. The correlation between BSN GPA and communication category showed a moderate negative correlation that was statistically significant ($r$(27) = -.35, $p<.05$) suggesting that BSNs with higher GPAs had somewhat poorer competencies in

Table 2

Means, Standard Deviations, and t Values on Competency Categories of ADNs and BSNs Excluding Five ADNs (Former LPNs)

| | ADN | | BSN | | t (a) |
|---|---|---|---|---|---|
| Variable | M | SD | M | SD | |
| Total Score (Both Vignettes) | 100.51 | 35.73 | 106.01 | 36.28 | .48 |
| Total Score (Stroke) | 53.76 | 20.97 | 51.44 | 24.79 | -.31 |
| Total Score (Alcohol) | 46.76 | 20.07 | 54.56 | 17.91 | 1.32 |
| Alcohol (Direct Care) | 7.82 | 2.15 | 9.18 | 2.24 | 1.94* |
| Stroke (Direct Care) | 6.29 | 3.11 | 6.76 | 4.06 | .39 |
| Total (Direct Care) | 14.11 | 4.78 | 15.94 | 5.45 | 1.10 |
| Alcohol (Communication) | 2.13 | 1.30 | 3.45 | 1.45 | 2.94** |
| Stroke (Communication) | 2.22 | .97 | 2.47 | 1.46 | .59 |
| Total (Communication) | 4.36 | 1.78 | 5.92 | 2.41 | 2.22* |
| Alcohol (Management) | 7.60 | 3.86 | 7.90 | 4.11 | .23 |
| Stroke (Management) | 9.64 | 4.23 | 8.70 | 4.40 | -.68 |
| Total (Management) | 17.24 | 6.83 | 16.60 | 6.97 | -.29 |

*p<.05; **p<.005.
a. pooled variance estimate. df = 42

Table 3

Age Intervals, Means, and Standard Deviations Of ADNs and BSNs

| Age Interval | ADN # | ADN % | ADN Cumulative | BSN # | BSN % | BSN Cumulative % |
|---|---|---|---|---|---|---|
| 18-21 | | | | 1 | 3.4 | 3.4 |
| 22-25 | 4 | 20 | 20 | 22 | 76.0 | 79.4 |
| 26-29 | 2 | 10 | 30 | 1 | 3.4 | 82.8 |
| 30-33 | 5 | 25 | 55 | 2 | 7.0 | 89.8 |
| 34-37 | 5 | 25 | 80 | 1 | 3.4 | 93.2 |
| 38-41 | 2 | 10 | 90 | 1 | 3.4 | 96.6 |
| 42-45 | 1 | 5 | 95 | 1 | 3.4 | 100.0 |
| 46-49 | 1 | 5 | 100 | | | |
| Total | 20 | | | 29 | | |
| Mean | 33.2 | | | 26.2 | | |
| Standard Deviation | 6.76 | | | 5.41 | | |

**Table 4**

Previous Hospital Experience Other Than Through Nursing Program

| Other Hospital Experience[a] | ADN | Total Months | BSN | # of Months |
|---|---|---|---|---|
| Pharmacy Technician | 1 | 72 | | |
| Licensed Practical Nurse | 5 | 594 | | |
| Nurse Technician | 2 | 12 | 4 | 28 |
| Nursing Assistant | 3 | 33 | 11 | 88 |
| Extern | | | 14 | 84 |
| Home Health Aide | | | 2 | 9 |
| Candy Striper | | | 1 | 3 |
| Secretary | 3 | 66 | 1 | 18 |
| X-Ray Technician | | | 1 | |
| Midwife | 1 | 132 | | |
| OR Technician | | | 1 | |
| No Experience | 5 | | 3 | |
| Total Number of Months | | **909 (80%)** | | **227 (20%)** |

[a] Total number of subjects exceeds 49 because some subjects listed more than one experience in the hospital setting.

Table 5

GPA Intervals, Means, and Standard Deviations of ADNs and BSNs

| GPA Interval | ADN | % | Cumulative % | BSN | % | Cumulative % |
|---|---|---|---|---|---|---|
| 2.4 - 2.7 | 3 | 15 | 15 | 2 | 7 | 7 |
| 2.8 - 3.1 | 6 | 30 | 45 | 8 | 27 | 34 |
| 3.2 - 3.5 | 7 | 35 | 80 | 15 | 52 | 86 |
| 3.6 - 3.9 | 4 | 20 | 100 | 4 | 14 | 100 |
| Total | 20 | | | 29 | | |
| Mean | 3.24 | | | 3.29 | | |
| Standard Deviation | .396 | | | .318 | | |

**Table 6**

Pearson Product Moment Correlations for Competency Categories with Age and GPA of ADNs and BSNs

| Competency Category | AGE | | GPA | |
|---|---|---|---|---|
| | ADN | BSN | ADN | BSN |
| Direct Care | -.001 | -.12 | -.19 | -.06 |
| Communication | .03 | -.29 | -.01 | -.35* |
| Management | .39 | -.28 | -.14 | -.13 |

*p<.05.
ADN df = 18
BSN df = 27

communication. Upon further analysis, a considerable increase in the negative correlation between GPA and communication competency category ($r(13) = -.53$, $p<.05$) occurred when the five ADNs who were former LPNs were excluded as shown in Table 7. This finding suggests that nurses from both ADN or BSN groups who had lower GPAs scored better on the communication competencies. These rather curious findings warrant further investigation.

Several explanations can be offered for these results. First, perhaps this form of paper and pencil testing can not distinguish between different levels of practice. Second, competencies may be more adequately tested in the clinical setting. Third, although the profession believes that two levels of practice exist, these findings raise serious questions as to whether two types of educational preparation are preparing two levels of practitioners.

Implications

In terms of new directions for the profession, two suggestions are warranted: first, curricula in educational programs must acknowledge competency statements describing two levels of practice and design associate and baccalaureate curricula accordingly (Maraldo, 1990). In a move to bring this about, accrediting bodies would have power to enforce a differentiated model for nursing practice to preclude blurring of competence of graduates from technical and professional curricula. Second, employment settings must assign nurses according to their educational preparation. As a result, accurate skill mix of ADNs and BSNs could become a cost effective method to reduce health

Table 7

Pearson Product Moment Correlations for Competency Categories with Age and GPA of ADNs and BSNs Excluding Five ADNs (Former LPNs)

| Competency Category | AGE | | GPA | |
|---|---|---|---|---|
| | ADN | BSN | ADN | BSN |
| Direct Care | -.11 | -.12 | -.36 | -.06 |
| Communication | .07 | -.29 | -.53* | -.35* |
| Management | .36 | -.28 | -.28 | -.13 |

*$p < .05$.
ADN df = 13
BSN df = 27

care expenditures (Barnum, 1991; Brchan, Hegge, Stenvig, 1991; Gibbs, McCaughan and Griffiths, 1991; Marz, 1989).

Unfortunately, the new directions cited above may be difficulty to implement. First, political power held by educational constituencies such as associate degree and hospital diploma programs, precludes significant curricular change for at least two reasons: 1) currently their graduates enjoy comparable salaries to BSN graduates, and 2) their student population pool would diminish as students would know that following graduation, their salary would not be similar to BSN graduates. Therefore, each of these constituencies would not be inclined to support accreditation criteria imposing curricular change towards mandated technical competencies. Second, it is further unlikely that employment settings can or would restructure their salary schedule and reassign nurses according to their educational preparation. Consequently, an alternative to upgrading non-BSNs' educational preparation to a professional level is imperative.

Since this study found no difference between ADNs and BSNs in two of three categories of nursing competencies (direct care and management), baccalaureate programs should undertake collaborative efforts to design articulation methods with associate degree and diploma programs. Previously mastered content could be tested, credits awarded for successful examination completion, other coursework (advanced nursing and liberal arts) could be taken, and a higher academic degree achieved. Unlike direct care and management competencies which tend to be more concrete in nature, skills in communication, the one category in which BSNs scored

better could be enhanced.

Several positive outcomes arise as a result of implementing articulation programs: 1) validating previous nursing information is significantly reduced as test-outs are remarkably less costly; 2) communication skills are more likely to be enhanced with advanced nursing coursework, the end result of which would be fostering adaptability to an ever-changing health care environment; 3) opportunities for graduate education becomes possible; 4) more satisfied nurses in health care settings render more effective care; and 5) skill mix becomes a reality as practice expectations become consonant with educational preparation. Thus, in terms of an alleged 'nursing shortage', dissatisfied nurses would not leave nursing and potential nurses would know that educational mobility (ADN to BSN) is a reality.

Since this study was completed, more studies have been published related to 1) competency statements (Deering-Flory and Neighbors, 1991), 2) differentiated practice/'skill mix' (Barnum, 1991; Brchan, Hegge, Stenvig, 1991; Gibbs, McCaughan, and Griffiths, 1991; Marz, 1989), and 3) demonstration projects involving service and education (Stenvig and Karpiuk, 1991). Also, articulation projects aimed at removing barriers to diploma and associate degree prepared nurses in order to facilitate educational mobility leading to achieving a baccalaureate degree in nursing are underway. One such project is Nursing Education Mobility Action Group (N.E.M.A.G.). Funded by the Greater Cleveland Hospital Association and a two-year grant from the Cleveland Foundation, this group's goal is to design an

articulation model. When fully implemented, this model will permit maximum credit transfer without repetitious nursing coursework. Furthermore, curricular standards will be maintained insuring degree integrity (Sutorius, 1991).

Summary and Conclusions

Since 1965 when the American Nurses' Association agreed that the baccalaureate degree was deemed necessary for entry into professional practice, considerable efforts were made to bring about this change. Competencies describing graduates from associate and baccalaureate degree programs were formulated by statewide, regional, and national groups. Unfortunately, progress in this area was thwarted by some nursing groups to prevent this change from happening. However, several factors have arisen within the past few years to provide increased impetus for change. First, technological developments in health care delivery has resulted in increased complexity of care needs requiring a more knowledgeable caregiver. Second, an alleged 'nursing shortage' developed perhaps as a result of more occupational opportunities open to women, job dissatisfaction of current nurses, and/or a reduced traditional age recruitment pool. There are some who wonder whether the alleged 'nursing shortage' is in reality a 'shortage of more educated nurses' to deal with increased complexity of care needs. Third, the American Medical Association's plan to train 'registered care technicians' prompted nursing leaders to seriously entertain the 1965 recommendation rather than be responsible for another level of worker. Taken collectively, these factors have led the nursing community to

consider several methods to bring about desired change. First, to describe two levels of nursing as 'differentiated practice' - a more palatable linguistic phrase to those groups previously opposed to 'technical' and 'professional' terminology; and second, to move forward in developing articulation agreements among diploma and associate degree programs with baccalaureate degree granting institutions.

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